Atty Docket No.: 246111US2DIV

Inventor: Tadao MICHISHITA, et al.

Preliminary Amendment

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-10 (canceled)

Claim 11 (original): A process for preparing a vitamin D derivative, comprising:

comprises an ultraviolet radiation-emitting lamp, an optical system on which light from the

using an ultraviolet irradiation apparatus for photochemical reactions, which

ultraviolet radiation-emitting lamp is struck, and which emits ultraviolet rays having a

specific wavelength, and a quartz rod on which the ultraviolet rays having the specific

wavelength from the optical system are struck, irradiating a solution of a provitamin D

derivative with the ultraviolet rays having the specific wavelength emitted from the quartz

rod of the ultraviolet irradiation apparatus to cause a photochemical reaction to the

provitamin D derivative solution, thereby forming a previtamin D derivative;

and subjecting the previtamin D derivative to a thermal isomerization reaction to

prepare the vitamin D derivative.

Claim 12 (original): The process according to Claim 11 for preparing the vitamin D

derivative, wherein the provitamin D derivative is a compound represented by the following

general formula 1, the previtamin D derivative is a compound represented by the following

general formula 2, and the vitamin D derivative is a compound represented by the following

general formula 3.

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$$R^2$$
 R^3

General Formula 1

$$R^2$$

General Formula 2

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$$\mathbb{R}^{3}$$

General Formula 3

wherein R¹ and R³ individually mean a hydrogen atom or a hydroxyl group which may have a protecting group, R² denotes a hydrogen atom, a hydroxyl group which may have a protecting group, a lower alkoxy group having 1 to 10 carbon atoms which may be substituted or a lower alkyl group having 1 to 10 carbon atoms which may be substituted, R is a hydrogen atom or a lower alkyl group having 1 to 10 carbon atoms which may be substituted, and X represents

-O-CH₂-, -S-CH₂-, -CH₂-CH₂-, -CH=CH- or -N-(R⁴)-CH₂-, in which R⁴ means a hydrogen atom or a lower alkyl group having 1 to 10 carbon atoms which may be substituted.

Claim 13 (original): A process for preparing a vitamin D derivative, comprising irradiating a solution of a provitamin D derivative represented by the general formula 1 according to Claim 12 with ultraviolet rays having a specific wavelength emitted from the ultraviolet irradiation apparatus for photochemical reactions according to Claim 11 to cause a

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photochemical reaction of the previtamin D derivative solution, thereby forming a previtamin D derivative represented by the general formula 2 according to Claim 12.

Claim 14 (original): The preparation process according to Claim 12, wherein in the general formulae 1, 2 and 3, R³ is a hydroxyl group, and X is -O-CH₂-.

Claim 15 (original): The preparation process according to Claim 14, wherein in the general formulae 1, 2 and 3, R¹ is a hydroxyl group.

Claim 16 (original): The preparation process according to Claim 15, wherein in the general formulae 1, 2 and 3, R² is a hydrogen atom.

Claim 17 (original): The preparation process according to Claim 16, wherein in the general formulae 1, 2 and 3, R is -CH₂-C(CH₃)₂OH.

Claim 18 (original): The preparation process according to Claim 16, wherein in the general formulae 1, 2 and 3, R is -CH₂-CH(CH₃)₂.

Claim 19 (original): The preparation process according to Claim 13, wherein in the general formulae 1 and 2, R^3 is a hydroxyl group, and X is -O-CH₂-.

Claim 20 (original): The preparation process according to Claim 19, wherein in the general formulae 1 and 2, R¹ is a hydroxyl group.

Claim 21 (original): The preparation process according to Claim 20, wherein in the general formulae 1 and 2, R^2 is a hydrogen atom.

Claim 22 (original): The preparation process according to Claim 21, wherein in the general formulae 1 and 2, R is -CH₂-C(CH₃)₂OH.

Claim 23 (original): The preparation process according to Claim 21, wherein in the general formulae 1 and 2, R is -CH₂,-CH(CH₃)₂.

Claim 24 (original): The preparation process according to Claim 12, wherein in the general formulae 1, 2 and 3, R^3 is a hydroxyl group, and X is $-CH_2CH_2$ -.

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Claim 25 (original): The preparation process according to Claim 24, wherein in the general formulae 1, 2 and 3, R¹ is a hydroxyl group.

Claim 26 (original): The preparation process according to Claim 25, wherein in the general formulae 1, 2 and 3, R² is a hydrogen atom.

Claim 27 (original): The preparation process according to Claim 25, wherein in the general formulae 1, 2 and 3, R² is a hydroxypropoxy group.

Claim 28 (original): The preparation process according to Claim 26, wherein in the general formulae 1, 2 and 3, R is -CH₂-C(CH₃)₂OH.

Claim 29 (original): The preparation process according to Claim 26, wherein in the general formulae 1, 2 and 3, R is -CH₂-CH(CH₃)₂.

Claim 30 (original): The preparation process according to Claim 27, wherein in the general formulae 1, 2 and 3, R is -CH₂-C(CH₃)₂OH.

Claim 31 (original): The preparation process according to Claim 27, wherein in the general formulae 1, 2 and 3, R is -CH₂CH(CH₃)₂.

Claim 32 (original): The preparation process according to Claim 13, wherein in the general formulae 1 and 2, R³ is a hydroxyl group, and X is -CH₂-CH₂-.

Claim 33 (original): The preparation process according to Claim 32, wherein in the general formulae 1 and 2, R^1 is a hydroxyl group.

Claim 34 (original): The preparation process according to Claim 33, wherein in the general formulae 1 and 2, R² is a hydrogen atom.

Claim 35 (original): The preparation process according to Claim 33, wherein in the general formulae 1 and 2, R² is a hydroxypropoxy group.

Claim 36 (original): The preparation process according to Claim 34, wherein in the general formulae 1 and 2, R is -CH₂-C(CH₃)₂OH.

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Claim 37 (original): The preparation process according to Claim 34, wherein in the general formulae 1 and 2, R is -CH₂-CH(CH₃)₂.

Claim 38 (original): The preparation process according to Claim 35, wherein in the general formulae 1 and 2, R is -CH₂-C(CH₃)₂OH.

Claim 39 (original): The preparation process according to Claim 35, wherein in the general formulae 1 and 2, R is -CH₂-CH(CH₃)₂.

Claim 40 (original): The preparation process according to Claim 12, wherein in the general formulae 1, 2 and 3, R³ is a hydroxyl group, and X is -CH=CH-.

Claim 41 (original): The preparation process according to Claim 40, wherein in the general formulae 1, 2 and 3, R¹ is a hydroxyl group.

Claim 42 (original): The preparation process according to Claim 41, wherein in the general formulae 1, 2 and 3, R^2 is a hydrogen atom.

Claim 43 (original): The preparation process according to Claim 42, wherein in the general formulae 1, 2 and 3, R is -CH₂-C(CH₃)₂OH.

Claim 44 (original): The preparation process according to Claim 42, wherein in the general formulae 1, 2 and 3, R is -CH₂-CH(CH₃)₂.

Claim 45 (original): The preparation process according to Claim 13, wherein in the general formulae 1 and 2, R₃ is a hydroxyl group, and X is -CH=CH-.

Claim 46 (original): The preparation process according to Claim 45, wherein in the general formulae 1 and 2, R¹ is a hydroxyl group.

Claim 47 (original): The preparation process according to Claim 46, wherein in the general formulae 1 and 2, R² is a hydrogen atom.

Claim 48 (original): The preparation process according to Claim 47, wherein in the general formulae 1 and 2, R is -CH₂-C(CH₃)₂OH.

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Claim 49 (original): The preparation process according to Claim 47, wherein in the general formulae 1 and 2, R is -CH₂-CH(CH₃)₂.